

REMARKS/ARGUMENTS**I. Introduction**

Receipt is acknowledged of the Non-Final Office Action dated July 12, 2004. Currently, claims 1-17 remain pending in the application. Claims 1-6 and 10-12 were previously canceled. Claim 13 is canceled herewith. Claims 7, 8, and 17 have been amended. No new matter has been added in the amendments, which are fully supported by the specification. Support for amended claim 7 may be found at page 3, lines 20-25 of the specification. Support for amended claim 17 may be found at page 6, lines 1-3 of the specification.

II. Examiner's Objections

The Examiner has objected to the drawings under 37 CFR § 1.83(a) because the drawings must show every feature of the invention specified in the claims. Applicant respectfully submits that Applicant's amendments to claims 7 and 17 have rendered moot the Examiner's objection to the drawings. Applicant further points out that as shown in figures 3 and 5, the essential feature of the instant invention includes: 1) holes in an inner cylinder arranged as groups; wherein 2) each group contains holes with substantially the same diameter relative to one another; and 3) a single group of holes is exposed to the inlet.

The Examiner has objected to the specification for failing to provide proper antecedent basis under 37 CFR § 1.75(d)(1) and MPEP § 608.01(o) for the subject matter recited in claim 7. Applicant respectfully submits that Applicant's amendment of claim 7 has rendered moot the Examiner's objection to the specification.

III. Examiner's Rejections**A. Rejections Under 35 U.S.C. § 112 first paragraph**

The Examiner has rejected claims 7 and 17 under 35 USC § 112, first paragraph, for failing to comply with the written description. The Examiner has alleged that the disclosure as originally filed does not disclose "two separate long tubes abut each side of said water passage" as recited in claim 7 or "plurality of pressure leakage preventing members fitted into an inner periphery of said outer cylinder" recited in claim 17. Applicant respectfully submits that Applicant's amendments to claims 7 and 17 have rendered moot the rejections of these claims under 35 USC § 112.

B. Rejections Under 35 U.S.C. § 112 second paragraph

The Examiner has rejected claims 7 and 3-17 as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. The Examiner has alleged that the term "long" in claim 7 is a relative term which renders the claim indefinite, and the metes and bounds of the claim cannot be determined. Applicant respectfully submits that Applicant's amendments to claims 7 and 17 have rendered moot the rejection of these claims under 35 USC § 112.

C. Rejections Under 35 U.S.C. § 103

The Examiner has maintained the rejection of claim 7 under 35 U.S.C. § 103(a) as being unpatentable over Dixon (U.S. Patent No. 4,508,138) in view of Benton (U.S. Patent No. 329,881). The Examiner has alleged that it would have been obvious to a person having ordinary skill in the art at the time of the invention to have provided a water passage in the device of Dixon as taught by Benton to thaw fluid because Dixon discloses the limitations of the claimed invention with the exception of the water passage, and Benton teaches a water passage d4 (two

separate long tubes d5).

The Examiner has maintained the rejection of claim 8 under 35 U.S.C. § 103(a) as being unpatentable over Dixon (U.S. Patent No. 4,508,138) in view of Young *et al.* (U.S. Patent No. 6,012,646). The Examiner has stated that Dixon discloses all of the limitations of the claimed invention with the exception of the conduit passage, while Young *et al.* teach a conduit passage (un-numbered, passage showing check valve) and a material supply port 24. The Examiner has argued that it would have been obvious to a person having ordinary skill in the art at the time of the invention to have combined the device of Dixon with a conduit passage and supply port as taught by Young *et al.* to prevent over-pressurization.

Applicant respectfully traverses the Examiner's rejections of claims 7 and 8 under 35 U.S.C. § 103(a). Applicant respectfully submits that the Examiner's rejections fail to establish a *prima facie* case of obviousness based on any combination of Dixon and Benton or Dixon and Young *et al.* under § 103. To establish a *prima facie* case of obviousness under 35 U.S.C. § 103, three basic criteria must be met: 1) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine the reference teachings; 2) there must be a reasonable expectation of success upon combining such references; and 3) the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on the Applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991). See M.P.E.P. § 2142.

The Examiner has not shown any motivation to combine Dixon with Benton, or a reasonable expectation of success upon combining Dixon and Benton. When the motivation to

combine the teachings of the references is not immediately apparent, it is the duty of the Examiner to explain why the combination of the teachings is proper. *Ex parte Skinner*, 2 U.S.P.Q.2d 1788 (Bd. Pat. App. & Inter. 1986). "The mere fact that references *can* be combined or modified does not render the resultant combination obvious, unless the prior art also suggests the *desirability* of the combination." M.P.E.P. § 2143.01 (citing *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990) (emphasis applied)).

The references cited by the Examiner do not disclose or teach all of the features of the instant invention. The Benton patent does not disclose a means by which the water-pipe passageway affects thawing through controlled temperature regulation. Benton teaches three water pipes (d5) that are not arranged along the center of the pipe, but rather, are arranged equally in the main pipe (e) as shown in Fig. 4 because this arrangement is preferable to thaw fluid in the main pipe (e). Benton's patent does not disclose or teach a water passage provided on a central axis of an inner cylinder, wherein the atomization temperature of water in the passage is adjusted by a temperature control device. In contrast, the water passage (25) of the present invention is arranged on the central axis of an inner cylinder (17) because this is preferable in order to more excellently atomize substances in the inner cylinder (17). Furthermore, the Benton patent was disclosed in 1885 and does not seem to be commonly used in the prior art.

The purposes of the Dixon and Benton patents are different from each other and from the instant invention. The purpose of the Dixon patent is to provide a polyjet valve with a fluid backwash feature. The purpose of the Benton patent is to instantly thaw frozen hydrant or water-pipes by injecting a jet of steam through a smaller tube inserted into the frozen hydrant or a water-pipe. In contrast, the purpose of the water passage (25) of the instant invention is to

produce a more excellent atomization process through controlled temperature regulation (see page 6, lines 1-9).

A person of ordinary skill in the art would not necessarily arrive at the water passage of the present invention by relying upon Dixon and Benton because, depending on the type of invention, there are many possible choices as to where the water pipes (d5) taught in the Benton patent may be placed on the main pipe (e) taught by Dixon. Applicant respectfully submits that the Examiner has not shown that by combining a smaller insertable water-pipe tube as taught by Benton with the polyjet valve taught in Dixon, that a reasonable expectation of success of controlling an atomization process through temperature regulation could be accomplished, as in the present invention. Thus, in light of amended claims 7 and 17, it would not be reasonable to expect the combination of Dixon and Benton to produce the claimed invention.

The Examiner has also not shown any motivation to combine the Dixon patent with the Young *et al.* patent and has not shown a reasonable expectation of success of producing the claimed invention by combining the Dixon and Young *et al.* references. “A prior art reference must be considered in its entirety, *i.e.*, as a whole, including portions that would lead away from the claimed invention.” *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 U.S.P.Q. 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984) (emphasis applied). An inquiry that focuses on [mere] substitutions and differences, instead of the invention as a whole, is legally improper. *See Hybritech v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1383, 231 U.S.P.Q. 81, 93 (Fed. Cir. 1986). The Examiner has claimed that the missing conduit and supply port of the Dixon device may be supplied by the conduit and supply port taught in the Young *et al.* patent. However, Dixon and Young *et al.* do not teach all of the features of claim 8, *i.e.*, a plurality of holes opposed to one another in a circumference that is the same as the

circumference of an inner cylinder. Because a person of ordinary skill in the art has many choices for positions where the plurality of holes are provided on the surface of the inner cylinder, the feature of amended claim 8 is not obvious (*see page 5, lines 22-27 of the specification*).

The objects of the Dixon and Young *et al.* patents are different from each other and from the object of the present invention. The purpose of the Dixon patent is to provide a polyjet valve with a fluid backwash while the purpose of the Young *et al.* patent is to provide an improved fuel delivery system for auxiliary vehicle heaters and gear pumps, which significantly reduces the risks of fuel spillage in high pressure systems. In contrast, the purpose of the present invention is to provide a conduit passage for the purpose of high pressure atomization processing through recurrent atomizing. Applicant respectfully submits that the Examiner has not shown how combining the fuel pump conduit and supply port taught by Young *et al.* with the polyjet valve taught by Dixon would be desirable in producing the claimed invention or a reasonable expectation of success of the claimed invention.

IV. Conclusion

In consideration of the above amendments and remarks, Applicant respectfully requests that a timely Notice of Allowance be issued in this application. Should there be any questions, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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